

## Message Text

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QUOTE

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SUBJECT: U.S. ASSISTANCE FOR DRAFTING IAEA SAFEGUARDS  
TECHNICAL MANUAL

REFS: (A) IAEA VIENNA 9828 (1975); (B) IAEA VIENNA  
10576 (1975)

1. THE IAEA IS IN THE PROCESS OF COMPLETING THE SAFEGUARDS  
TECHNICAL MANUAL (STM) WHICH IS TO BE A BASIC SAFEGUARDS  
REFERENCE DOCUMENT FOR USE BY THE IAEA SECRETARIAT IN  
DEVELOPING THEIR DETAILED SAFEGUARDS ACTIVITIES. BUILDING  
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UPON THE STANDARD NPT SAFEGUARDS AGREEMENT (INFCIRC 153), PART A, ONE OF THE KEY PARTS OF THE STM, ADDRESSES THE BASIC OBJECTIVES, CRITERIA AND REQUIREMENTS FOR IAEA SAFEGUARDS. DURING EARLY NOVEMBER, THE U.S. PROVIDED ASSISTANCE TO THE IAEA IN DRAFTING SOME OF THE MATERIAL FOR PART A AND OTHER PARTS OF THE STM. IN THE COURSE OF THIS WORK, A NUMBER OF FUNDAMENTAL QUESTIONS AND ISSUES RELATING TO IAEA SAFEGUARDS WERE IDENTIFIED. SOME OF THESE WERE REPORTED IN REFTEL A. REFTEL B REPORTS ON A REQUEST BY THE IAEA FOR FURTHER ASSISTANCE FROM THE U.S. IN THE PREPARATION OF THE STM.

2. THE PURPOSE OF THIS TELEGRAM IS TO PROVIDE GUIDANCE ON THE U.S. POSITION ON SOME OF THE KEY SAFEGUARDS QUESTIONS AND ISSUES WHICH HAVE ARISEN TO DATE. IAEA SAFEGUARDS, HOWEVER, ARE STILL IN A DEVELOPMENTAL STAGE IN A NUMBER OF RESPECTS AND WILL CONTINUE TO EVOLVE FOR AT LEAST THE NEXT FEW YEARS. CONSEQUENTLY, NOT ALL ISSUES WHICH MAY SURFACE IN THE COURSE OF THIS EVOLUTION CAN NOW BE IDENTIFIED AND ASSESSED. THE DEVELOPMENT AND EVOLUTION OF THE IAEA SAFEGUARDS SYSTEM WILL REQUIRE CONTINUOUS CLOSE SCRUTINY BY THE U.S. IN ORDER TO PROVIDE THE BASIS FOR REGULAR ASSESSMENTS OF THE SYSTEM, FOR IDENTIFICATION OF NEW ISSUES AND QUESTIONS AS THEY ARISE AND FOR PLANNING AND PROGRAMMING FURTHER ASSISTANCE BY THE U.S. TO IAEA SAFEGUARDS.

3. THE POSITIONS STATED IN THESE INSTRUCTIONS ARE BASED, INTER ALIA, UPON THE FOLLOWING PREMISES.

A. THE DIVERSION ADVERSARY WHICH THE IAEA SAFEGUARDS SYSTEMS UNDER BOTH INFCIRC 66 AND INFCIRC 153 MUST BE DESIGNED TO COUNTER IS THE STATE AND THE THREAT MUST TAKE INTO ACCOUNT THE RESOURCES OF THE STATE FOR DIVERSION PURPOSES. THE IAEA IS NOT, HOWEVER, RESPONSIBLE FOR DETERMINING WHO HAS PERPETRATED A DIVERSION, BUT ONLY FOR DETECTING THAT A DIVERSION HAS OCCURRED, I.E., THAT MATERIAL IS MISSING. NEITHER IS THE IAEA RESPONSIBLE FOR DETERMINING TO WHAT USE DIVERTED MATERIAL HAS BEEN PUT.

B. THE IAEA IS NOT RESPONSIBLE FOR ATTEMPTING TO DETECT  
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CLANDESTINE FACILITIES. THE IAEA CANNOT, HOWEVER, ASSUME THE NON-EXISTENCE OF CLANDESTINE FACILITIES.

C. NUCLEAR WEAPONS OR OTHER EXPLOSIVE DEVICES CAN BE FABRICATED FROM PLUTONIUM OF HIGH 240 CONTENT. AS A CONSEQUENCE, HIGH BURN-UP FUELS FROM POWER REACTORS UTILIZING NATURAL AND LOW ENRICHED URANIUM FUELS MUST BE

CONSIDERED AS POSSIBLE SOURCES OF PLUTONIUM FOR DIVERSION TO A CLANDESTINE NUCLEAR WEAPONS PROGRAM. BECAUSE OF THE RELATIVELY HIGH CONCENTRATION OF PLUTONIUM IN SUCH HIGH BURN-UP FUELS, RELATIVELY SMALL AND INEXPENSIVE CLANDESTINE REPROCESSING OPERATIONS MUST BE CONSIDERED AS A CREDIBLE THREAT. BECAUSE OF THE EXISTENCE OF REPROCESSING FACILITIES WHICH ARE UNSAFEGUARDED OR ONLY PARTIALLY SAFEGUARDED IN STATES NOT PARTY TO THE NPT, THE IAEA SYSTEM MUST ALSO RECOGNIZE THE POSSIBILITY OF UNDISCLOSED REPROCESSING OF FUEL FROM ONE STATE IN ANOTHER STATE.

D. THE IAEA SAFEGUARDS SYSTEM MUST TAKE INTO ACCOUNT THE POSSIBILITY OVER THE NEXT SEVERAL YEARS OF (1) UNDECLARED, RELATIVELY SMALL REACTORS CAPABLE OF PRODUCING PLUTONIUM FOR A WEAPONS PROGRAM AND FUELED BY

EITHER NATURAL OR LOW-ENRICHED URANIUM, AND (2) THE AVAILABILITY OF ADVANCED ENRICHMENT TECHNIQUES WHICH COULD BE USED IN SMALL SCALE OPERATIONS TO UPGRADE CLANDESTINELY LOW ENRICHED URANIUM FOR A WEAPONS PROGRAM. FOR THESE REASONS, THE IAEA SYSTEM MUST CONTINUE TO REQUIRE FULL ACCOUNTABILITY OF NATURAL AND LOW-ENRICHED URANIUM EVEN THOUGH SOME GRADING OF SAFEGUARDS (SEE PARAGRAPH 11) CAN BE JUSTIFIED FOR URANIUM OF DIFFERENT ENRICHMENTS.

4. THE DIVERSION THREATS OR SCENARIOS WHICH THE IAEA'S SAFEGUARDS SYSTEMS MUST BE DESIGNED AND IMPLEMENTED TO COUNTER INCLUDE:

A. DIVERSION OF SAFEGUARDED MATERIAL BY OVERSTATEMENTS OF REMOVALS OR WITHDRAWALS FROM SAFEGUARDS, E.G., WASTES.

B. DIVERSION OF SAFEGUARDED MATERIALS BY FALSIFICATION OF RECORDS AND REPORTS, E.G., THE USE OF FLOATING UNCLASSIFIED

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INVENTORIES TO CONCEAL THE ABSENCE OF DIVERTED MATERIAL.

C. DIVERSION OF SAFEGUARDED MATERIALS BY CONCEALMENT OF THE ABSENCE OF MATERIAL WITHIN THE UNCERTAINTIES OF THE MEASUREMENT SYSTEM EITHER WITH OR WITHOUT INTENTIONAL EFFORTS ON THE PART OF THE STATE AND FACILITY OPERATOR TO MAKE THEIR MEASUREMENT UNCERTAINTIES AS LARGE AS THOSE

THE IAEA WILL TOLERATE.

D. DIVERSION OF UNSAFEGUARDED MATERIAL BY UNDERSTATING RECEIPTS AT A SAFEGUARDED FACILITY. THIS IS THE PROBLEM OF THE CLANDESTINE USE OF A SAFEGUARDED FACILITY AND IS PARTICULARLY CRITICAL AT THOSE TYPES OF FACILITIES IN

WHICH SPECIAL FISSIONABLE MATERIALS ARE PRODUCED, E.G., REACTORS AND URANIUM ENRICHMENT FACILITIES, OR FIRST BECOME AVAILABLE FOR USE, I.E., REPROCESSING PLANTS. THE RELEVANT DIVERSION SCENARIOS INCLUDE: (1) UNDER-STATEMENTS OF THE QUANTITIES OF MATERIALS FIRST COMING UNDER SAFEGUARDS, AND (2) CLANDESTINE SPECIAL FISSIONABLE MATERIAL PRODUCTION PROGRAMS INVOLVING THE USE OF VARIOUS COMBINATIONS OF SAFEGUARDED FACILITIES AND SMALL CLANDESTINE FACILITIES. AN EXAMPLE OF THE LATTER IS THE USE OF A SAFEGUARDED REACTOR TO IRRADIATE UNSAFEGUARDED FUEL FROM WHICH THE PLUTONIUM IS SUBSEQUENTLY RECOVERED IN A CLANDESTINE REPROCESSING FACILITY.

5. THE FUNDAMENTAL MEASURE OF EFFECTIVENESS OF ANY IAEA SAFEGUARDS SYSTEM MUST BE ITS ABILITY TO DETECT THE ABOVE TYPES OF DIVERSION SHOULD THEY OCCUR. THIS IS TRUE REGARDLESS OF THE NATURE OR LEVEL OF SAFEGUARDS ACTIVITIES CARRIED OUT BY A STATE WHETHER IN COOPERATION

WITH OR INDEPENDENT OF IAEA SAFEGUARDS ACTIVITIES. DETAILS OF NUMBERS AND DURATIONS OF IAEA INSPECTION, MEASUREMENT UNCERTAINTIES, SIGNIFICANT QUANTITIES, ETC., WHILE ALL VERY RELEVANT TO SAFEGUARDS EFFECTIVENESS, MUST NOT BE SUBSTITUTED FOR THE ABOVE FUNDAMENTAL MEASURE OF IAEA SAFEGUARDS EFFECTIVENESS.

6. IN ORDER TO ENSURE THE TIMELY DETECTION BY THE IAEA  
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SAFEGUARDS SYSTEMS OF THE DIVERSION OF NUCLEAR MATERIALS BY ANY OF THE ABOVE TYPES OF SCENARIOS, THE SYSTEMS MUST BE ABLE TO VERIFY THAT (1) ALL MATERIAL SUBJECT TO IAEA SAFEGUARDS REMAINS PRESENT IN THE STATE; (2) THE QUANTITIES OF MATERIALS IMPORTED OR PRODUCED ARE NEITHER UNDERSTATED NOR UNREPORTED BY THE STATE; AND (3) THE QUANTITIES OF MATERIALS ON WHICH SAFEGUARDS ARE TO BE TERMINATED ARE NOT OVERSTATED BY THE STATE. THESE GENERAL OBJECTIVES ARE TRANSLATED BELOW INTO SPECIFIC KEY OBJECTIVES FOR VARIOUS FACILITY TYPES. BOTH THE GENERAL AND SPECIFIC OBJECTIVES ARE INDEPENDENT OF THE COMPLETENESS OF THE FUEL CYCLE IN THE STATE.

A. ENRICHMENT FACILITIES. ALL FLOWS AND INVENTORIES AND, IN PARTICULAR, ALL OUTPUTS AND THEIR ENRICHMENTS, INCLUDING POSSIBLE UNREPORTED PRODUCT, MUST BE VERIFIED. ANY UNVERIFIED INVENTORY IN AREAS FROM WHICH INSPECTORS ARE EXCLUDED MUST BE INCLUDED IN MATERIAL UNACCOUNTED FOR.

B. REPROCESSING FACILITIES. ALL FLOWS AND INVENTORIES AND, IN PARTICULAR, ALL PLUTONIUM AND URANIUM INPUTS,

INCLUDING POSSIBLE UNREPORTED INPUTS, MUST BE VERIFIED.

C. POWER REACTORS AND LARGE RESEARCH REACTORS. THE TOTAL AMOUNT OF NUCLEAR MATERIAL, I.E., THE TOTAL NUMBER OF FUEL ASSEMBLIES AND THEIR URANIUM AND PLUTONIUM CONTENT, WHICH IS IRRADIATED IN THE REACTOR MUST BE VERIFIED. ALL IRRADIATED NUCLEAR MATERIAL REMOVED FROM THE REACTOR MUST BE VERIFIED WHILE IN STORAGE AND TRANSIT TO REPROCESSING FACILITIES. (THIS WILL INVOLVE ITEM ACCOUNTABILITY FOR THE MOST PART AT THE REACTOR WITH QUANTITY DETERMINATIONS VERIFIED AT THE FUEL FABRICATION FACILITY.)

D. OTHER FACILITIES. INPUTS TO THESE FACILITIES ARE VERIFIED AS SHIPMENTS FROM THE ABOVE TYPES OF FACILITIES OR AS INTERNATIONAL TRANSFERS. REMOVALS, E.G., WASTES AND INTERNATIONAL TRANSFERS, MUST BE VERIFIED AND PERIODIC INVENTORIES MUST BE VERIFIED TO ENSURE THAT THE MATERIAL IMPORTED INTO THE STATE OR PRODUCED IN THE STATE REMAINS UNDER SAFEGUARDS.

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7. THE EFFECTIVENESS OF IAEA SAFEGUARDS ARE CRITICALLY DEPENDENT UPON THE ACCURACY AND PRECISION WITH WHICH NUCLEAR MATERIALS ARE MEASURED BY BOTH THE IAEA AND THE STATE (FACILITY OPERATOR), SINCE THE IAEA SAFEGUARDS SYSTEMS ARE DESIGNED ON THE BASIS OF VERIFICATION OF THE STATE SYSTEM DATA THROUGH SELECTIVE INDEPENDENT MEASUREMENTS BY THE IAEA RATHER THAN FULL DUPLICATION OF THE STATE'S MEASUREMENTS. IT IS IMPERATIVE, THEREFORE, THAT THE STATE'S MEASUREMENTS BE IN CONFORMITY WITH INTERNATIONAL STANDARDS OF MEASUREMENT QUALITY AND THAT THESE STANDARDS BE SET BY THE IAEA AT LEVELS EQUAL TO THOSE ESTABLISHED FOR U.S. NUCLEAR FACILITIES BY U.S. DOMESTIC REGULATIONS. (THE ACTUAL NUMBERS RATHER THAN REFERENCE TO U.S. REGULATIONS SHOULD BE USED IN DISCUSSIONS WITH IAEA.)

8. AN ADDITIONAL CONDITION NECESSARY FOR UNIFORM AND EFFECTIVE APPLICATION OF SAFEGUARDS IS THE USE OF STANDARDIZED DECISION PROCEDURES WITH RESPECT TO SAFEGUARDS INFORMATION. THE IAEA SHOULD ESTABLISH AND USE CLEARLY DEFINED PROCEDURES AND CRITERIA FOR DETERMINING INTER ALIA (1) WHEN A SAFEGUARDS SITUATION IS ABNORMAL, I.E., SOME FURTHER ACTION IS REQUIRED; (2) WHEN A NON-ROUTINE INSPECTION IS REQUIRED; AND (3) WHAT INFORMATION AND UNDER WHAT CIRCUMSTANCES THIS INFORMATION IS TO BE SUBMITTED TO HIGHER AUTHORITY INCLUDING THE BOARD OF GOVERNORS.

9. SIGNIFICANT QUANTITIES. DURING PREVIOUS TECHNICAL SAFEGUARDS MEETINGS EXPERTS FROM MEMBER STATES ADVISED THE IAEA THAT THE ANNUAL GOALS FOR DIVERSION DETECTION BY THE IAEA SHOULD BE IN THE RANGE OF 1 TO 8 KILOGRAMS OF PLUTONIUM AND 1 TO 25 KILOGRAMS OF CONTAINED URANIUM 235. (THESE VALUES FOR URANIUM CURRENTLY APPLY TO ALL LEVELS OF ENRICHMENT. CONSIDERATION IS GIVEN IN PARAGRAPH 11(C) TO LARGER VALUES OF SIGNIFICANT QUANTITIES FOR URANIUM OF ENRICHMENTS LESS THAN 20 PERCENT.) THE SMALLER AMOUNTS WOULD APPLY TO SMALL FACILITIES AND THE LARGER AMOUNTS TO LARGE FACILITIES. AT LARGE FACILITIES, HOWEVER, CURRENT MEASUREMENT TECHNOLOGY LIMITS THE PRECISION WITH WHICH THE MATERIAL BALANCE CAN BE CLOSED.

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CONSEQUENTLY, THE LIMITS OF DETECTION BY THE IAEA OF DIVERSION ARE SET BY MEASUREMENT LIMITS AS A PERCENT OF THROUGHPUT OR UNSEALED INVENTORY FOR A FACILITY. HEREIN LIES THE IMPORTANCE OF ESTABLISHING STRINGENT INTERNATIONAL STANDARDS FOR SAFEGUARDS MEASUREMENTS. THE IAEA'S OPERATING GOALS FOR THESE FACILITIES SHOULD BE THOSE ACHIEVABLE WITH CURRENT MEASUREMENT TECHNOLOGY (E.G., U.S. DOMESTIC REGULATIONS) BUT WITH THE 1 TO 8 KILOGRAMS OF PLUTONIUM AND 1 TO 25 KILOGRAMS OF CONTAINED URANIUM 235 REMAINING AS CURRENT GOALS FOR LARGER FACILITIES AS DIVERSION DETECTION TECHNOLOGY IMPROVES. IN THE FUTURE MORE STRINGENT SAFEGUARDS MAY BE REQUIRED IF THESE PROVE TO BE INADEQUATE.

10. THE IAEA SECRETARIAT DURING THE PAST YEAR ON SEVERAL OCCASIONS PROPOSED SCHEMES FOR GRADING SAFEGUARDS WHEREBY THE OBJECTIVES OF IAEA SAFEGUARDS AT A PARTICULAR FACILITY, THE SIGNIFICANT QUANTITIES OF MATERIAL TO BE DETECTED IF MISSING, THE PROBABILITY OF DETECTING SUCH QUANTITIES IF MISSING, AND THE FREQUENCY OF PHYSICAL INVENTORY (THE TIMELINESS OF DIVERSION DETECTIONS) WOULD BE VARIED DEPENDING UPON (1) THE COMPLETENESS OF THE KNOWN FUEL CYCLE IN THE STATE, (2) THE PERCENT PLUTONIUM 240 CONTENT OF PLUTONIUM, (3) THE PERCENT ENRICHMENT OF URANIUM, AND (4) WHETHER THE URANIUM AND PLUTONIUM WERE IN THE FORM OF IRRADIATED REACTOR FUEL. THESE SCHEMES, IF IMPLEMENTED, WOULD HAVE A DRASTIC EFFECT ON THE EFFECTIVENESS OF IAEA SAFEGUARDS. FOR EXAMPLE, SAFEGUARDS ON ESSENTIALLY ALL PLUTONIUM PRODUCED IN POWER REACTORS WOULD BE SIGNIFICANTLY RELAXED. THE APPARENT REASON FOR THE IAEA SECRETARIAT TO HAVE PUT FORWARD THESE SCHEMES IS THEIR ANTICIPATION THAT IN THE FUTURE THE RESOURCES THAT WILL BE AVAILABLE FOR SAFEGUARDS WILL BE SO LIMITED THAT A MAJOR REDUCTION IN THE OBJECTIVES OF SAFEGUARDS WILL BE REQUIRED. WHILE IT IS CLEARLY THE RESPONSIBILITY OF THE SECRETARIAT

TO UTILIZE IN THE OPTIMUM MANNER THOSE RESOURCES MADE AVAILABLE TO IT, IT IS THE MEMBER STATES OF THE IAEA, NOT THE SECRETARIAT, WHICH IS THE COMPETENT BODY TO MAKE FUNDAMENTAL COMPROMISES IN THE SCOPE AND OBJECTIVES OF SAFEGUARDS. THE SECRETARIAT SHOULD MAKE OBJECTIVE AND SUPPORTABLE ESTIMATES OF THE RESOURCES REQUIRED TO MEET SAFEGUARDS

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OBJECTIVES AS OUTLINED IN PARA 6 AND SHOULD BE PREPARED TO ADVISE THE BOARD OF GOVERNORS OF THE CONSEQUENCES IN TERMS OF SAFEGUARDS EFFECTIVENESS OF REDUCED RESOURCES.

11. THE TECHNICAL MERITS OF THE PROPOSED FACTORS FOR GRADING SAFEGUARDS ARE:

(A) FUEL CYCLE. BECAUSE OF THE POSSIBILITY THAT CLANDESTINE FACILITIES MAY EXIST, THE DESIGN OF IAEA SAFEGUARDS (OBJECTIVES, SIGNIFICANT QUANTITIES, DETECTION PROBABILITIES, AND INVENTORY VERIFICATION FREQUENCY) FOR ANY PARTICULAR TYPE OF FACILITY SHOULD NOT BE DEPENDENT UPON THE NUMBERS OR TYPES OF OTHER FACILITIES IN THE DECLARED FUEL CYCLE OF THE STATE.

(B) PLUTONIUM 240 CONTENT. BECAUSE OF THE POTENTIAL FOR USE OF HIGH BURNUP PLUTONIUM FOR WEAPONS PROGRAMS THE 240 ISOTOPE CONTENT OF PLUTONIUM SHOULD NOT BE A FACTOR IN THE DESIGN OF IAEA SAFEGUARDS.

C. URANIUM 235 ENRICHMENT. THE OBJECTIVES BY FACILITY TYPE AS STATED IN PARAGRAPH 6 SHOULD NOT BE DEPENDENT UPON URANIUM 235 ENRICHMENT. SIGNIFICANT QUANTITIES OF URANIUM FOR ENRICHMENTS OF 20 PER CENT OR MORE SHOULD REMAIN AS INDICATED IN PARAGRAPH 9. AN INCREASE IN SIGNIFICANT QUANTITIES FOR URANIUM AT THE 50 PER CENT OR LESS ENRICHMENT LEVEL AS HAS BEEN SUGGESTED BY THE IAEA SECRETARIAT IS NOT ACCEPTABLE. CONSIDERATION SHOULD BE GIVEN TO USING LARGER VALUES OF SIGNIFICANT QUANTITIES FOR URANIUM OF ENRICHMENTS OF LESS THAN 20 PER CENT. THE SAGSI HAS BEEN ASKED TO EXAMINE SIGNIFICANT QUANTITIES AND THE SPECIFICATION OF SUCH LARGER VALUES SHOULD BE DEFERRED UNTIL THE SAGSI EXAMINATION EXPECTED AT THEIR JUNE 1976 MEETING. ANY NEW VALUES FOR SIGNIFICANT QUANTITIES OF URANIUM OF ENRICHMENTS OF LESS THAN 20 PERCENT SHOULD BE SPECIFIED

IN ABSOLUTE QUANTITIES, AS ARE THE EXISTING 1 TO 25 KG GOALS IN PARAGRAPH 9, RATHER THAN AS PERCENTAGES OF THROUGH PUT OR INVENTORY OF A FACILITY. AN EXCEPTION TO PERMITTING THIS INCREASE IN SIGNIFICANT QUANTITIES OF LOW ENRICHED URANIUM IS IN THE DETERMINATION AT THE FABRICATION FACILITY OF THE MATERIAL CONTAINED IN REACTOR FUEL SINCE MAXIMUM ACCURACY IN THE URANIUM AND URANIUM 235 INITIAL CONTENT OF FUEL IS AN IMPORTANT CONTRIBUTOR TO THE VERIFICATION OF THE PLUTONIUM PRODUCED IN THE FUEL.

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WHILE IN PRINCIPLE, ADJUSTMENT OF DETECTION PROBABILITIES WOULD BE JUSTIFIABLE WHENEVER ADJUSTMENTS IN SIGNIFICANT QUANTITIES ARE JUSTIFIABLE, THERE SEEMS NO PRACTICAL ADVANTAGE IN ADJUSTING BOTH. FOR THIS REASON AND SINCE ADJUSTMENTS IN SIGNIFICANT QUANTITIES WITH A FIXED DETECTION PROBABILITY SEEM MORE READILY INTERPRETABLE, IT IS PREFERABLE THAT SIGNIFICANT QUANTITIES RATHER THAN DETECTION PROBABILITIES BE THE PARAMETER ADJUSTED. AS IS ALREADY THE PRACTICE OF THE IAEA, THE FREQUENCY OF PHYSICAL INVENTORIES FOR URANIUM OF GREATER THAN 20 PER CENT ENRICHMENT SHOULD BE GREATER THAN FOR URANIUM OF LOWER ENRICHMENTS.

D. UNREPROCESSED IRRADIATED FUEL (HIGH FISSION PRODUCT CONTAMINATION). BECAUSE OF THE POSSIBILITY OF CLANDESTINE REPROCESSING THE IAEA SAFEGUARDS SYSTEM SHOULD FULLY ACCOUNT FOR IRRADIATED FUEL, AS INDICATED IN PARAGRAPH 6, TO ENSURE AGAINST DIVERSION OF THE CONTAINED PLUTONIUM. SIGNIFICANT QUANTITIES AND DETECTION PROBABILITIES SHOULD BE THE SAME FOR PLUTONIUM AND URANIUM CONTAINED WITHIN IRRADIATED FUEL AS FOR THESE MATERIALS IN THEIR PURIFIED FORMS. THE FREQUENCY WITH WHICH THESE MATERIALS NEED TO BE INVENTORIED (THE TIMELINESS OF DETECTION), HOWEVER, SHOULD BE LOWER FOR MATERIALS IN THE IRRADIATED FORM THAN FOR THE PURIFIED FORMS.

12. WITH RESPECT TO IAEA SAFEGUARDS IN THOSE STATES WHICH ESTABLISH NATIONAL SAFEGUARDS SYSTEMS WHICH INDEPENDENTLY VERIFY THE FACILITY ACCOUNTANCY DATA (LEVEL II VERIFICATION BY THE STATE) THE FOLLOWING PRINCIPLES APPLY. SINCE THE OVERALL OBJECTIVE OF IAEA SAFEGUARDS IN ALL STATES IS TO VERIFY THAT THE STATE IS ADHERING TO UNDERTAKINGS MADE BY THE STATE AND IN VIEW OF THE BASIC PREMISES IN PARAGRAPH 3 ABOVE, THE IAEA CANNOT DELEGATE ITS RESPONSIBILITY FOR VERIFICATION AND INDEPENDENT MEASUREMENT TO THE STATE. THERE HAS BEEN ESTABLISHED NO REPEAT NO VALID TECHNICAL BASIS WHEREIN DATA AND MEASUREMENTS GENERATED BY A NATIONAL SYSTEM CAN BE USED BY THE IAEA IN PLACE OF IAEA MEASUREMENTS AND OTHER VERIFICATION ACTIVITIES. INSPECTIONS CAN BE CARRIED OUT COOPERATIVELY BY THE STATE AND THE IAEA WITH SOME RESULTANT ECONOMIES IN INSPECTION

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EFFORT BUT THE TECHNICAL CONCLUSIONS OF IAEA SAFEGUARDS MUST BE BASED UPON INFORMATION VERIFIED DIRECTLY BY THE



IAEA THROUGH THEIR OWN INDEPENDENT MEASUREMENTS. FOR ALL STATES, REGARDLESS OF THE NATURE OF THE SAFEGUARDS ACTIVITIES OF THE STATE, THE BASIC MEASURE OF EFFECTIVENESS OF IAEA SAFEGUARDS MUST BE THE CAPABILITY OF THE IAEA SYSTEM AS IT IS IMPLEMENTED TO DETECT THE FULL RANGE OF DIVERSION THREATS IDENTIFIED IN PARAGRAPH 4.

13. THE ABOVE POSITIONS ARE GUIDANCE TO BE FOLLOWED BY US PERSONNEL ASSISTING THE IAEA IN PREPARATION OF THE STM. THEY ARE ALSO TO SERVE AS GUIDANCE FOR US INPUTS TO ANY OTHER IAEA DOCUMENTS, INTERNAL AS WELL AS PUBLISHED, AND FOR US INPUTS TO IAEA IMPLEMENTATION PRACTICES AND PROCEDURES.

14. IN ADDITION THE MISSION SHOULD OFFICIALLY ADVISE THE IAEA INSPECTOR GENERAL, AND THE DIRECTOR GENERAL IF THE MISSION DEEMS APPROPRIATE, OF THE BASIC US POSITIONS AS CONTAINED IN PARAGRAPHS 3 THROUGH 12 ABOVE. THIS PRESENTATION MAY AT THE DISCRETION OF THE MISSION BE MADE WITH A WRITTEN AIDE MEMOIRE. THE MISSION ALSO AT ITS DISCRETION MAY COORDINATE THESE US POSITIONS WITH THE USSR, UK, CANADIAN AND OTHER MISSIONS. IN PARTICULAR IT MAY BE USEFUL TO SEEK USSR AGREEMENT ON THE NECESSITY OF FULL SAFEGUARDS ON REACTOR GRADE PLUTONIUM. ROBINSON

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